

## **IN THE CLAIMS:**

Please amend the claims as follows:

1           1. (Currently Amended) A method of correcting resonance position or the external  
2 decay time of a waveguide micro-resonator comprising physically altering by deposition,  
3 ~~removal, or growth of material in or around said waveguide~~ on the core of the waveguide  
4 micro-resonator.

1           2. (Canceled) The method of claim 1, wherein said altering of the material occurs on  
2 the core of the waveguide micro-resonator.

1           3. (Currently Amended) The method of claim 1, wherein said altering of the material  
2 further occurs in the cladding of the waveguide micro-resonator.

1           4. (Original) The method of claim 1, wherein reaction products of a deposition or  
2 growth have different chemical compositions from that of the core.

1           5. (Original) The method of claim 1, wherein said altering comprises a wet chemical  
2 reaction.

1           6. (Original) The method of claim 1, wherein said altering comprises a thermal  
2 reaction at temperatures above 100°C.

1           7. (Original) The method of claim 1, wherein reaction products of a growth are  
2 removed after the reaction associated with said growth.

1           8. (Original) The method of claim 1, wherein reaction products of a growth are left  
2 between the core and the cladding after the reaction associated with said growth.

1           9. (Original) The method of claim 1, wherein reaction products of a deposition or  
2 growth have refractive indices that range from that of the core to that of the cladding.

1           10. (Original) The method of claim 1, wherein reaction products of a deposition have a  
2 graded refractive index profile from that of the core to that of the cladding.

1           11. (Original) The method of claim 1, wherein said altering results in a change in  
2 optical path length in said waveguide micro-resonator.

1           12. (Original) The method of claim 1, wherein said altering results in a change in  
2 coupling of said waveguide micro-resonator, thus in a change in coupling efficiency and shape  
3 of the waveguide micro-resonator resonance.

1           13. (Withdrawn) A method of correcting the position of or the shape of resonance of a  
2 waveguide micro-resonator comprising focusing a large amount of electromagnetic energy onto  
3 the resonator.

1           14. (Withdrawn) The method of claim 13, wherein said electromagnetic energy  
2 transfers a large amount of thermal energy to the cavity core of said waveguide micro-  
3 resonator.

1           15. (Withdrawn) The method of claim 13, wherein one or more materials comprising  
2 the waveguide micro-resonator undergoes a physical or mechanical change.

1           16. (Withdrawn) The method of claim 13, wherein one or more materials comprising  
2 the waveguide micro-resonator core undergoes a physical or mechanical change, or an index  
3 change.

1           17. (Withdrawn) The method of claim 16, wherein one or more materials comprising  
2 the waveguide micro-resonator core undergoes an index change as a result of photosensitivity.

1           18. (Withdrawn) The method of claim 16, wherein one or more materials comprising  
2 the waveguide micro-resonator core undergoes an index change as a result of a long lasting  
3 photo-refractive effect.

1           19. (Withdrawn) The method of claim 13, wherein said electromagnetic energy  
2 transfers a large amount of thermal energy to a region surrounding the waveguide micro-  
3 resonator cavity.

1           20. (Withdrawn) The method of claim 13, wherein one or more materials surrounding  
2 the waveguide micro-resonator undergoes a physical change from non-chemical origins.

1           21. (Withdrawn) The method of claim 13, wherein one or more materials surrounding  
2 the waveguide micro-resonator undergoes a mechanical change.

1           22. (Withdrawn) The method of claim 13, wherein one or more materials surrounding  
2 the waveguide micro-resonator undergoes an index change as a result of photosensitivity.

1           23. (Withdrawn) The method of claim 13, wherein one or materials surrounding the  
2 waveguide micro-resonator undergoes an index change as a result of a long lasting photo-  
3 refractive effect.

1           24. (Withdrawn) The method of claim 13, wherein said electromagnetic energy induces  
2 a change in optical path length in said waveguide micro-resonator.

1           25. (Withdrawn) The method of claim 13, wherein said electromagnetic energy  
2 induces a change in coupling of said micro-resonator, thus a change in coupling efficiency and  
3 shape of the micro-resonator resonance

1           26. (Canceled) A high index difference waveguide micro-resonator device that  
2 temporarily changes position or shape of resonance comprising:

3           at least one patterned layer core, the at least one patterned layer core has at least one  
4 resonator and at least one input/output waveguide; a cladding surrounding said core, said  
5 cladding including regions surrounding said core where an evanescent field resides unless  
6 temporarily changed; and

7           non-intersecting input and output waveguides;

8           at least one layer defining a tuning region; and

9           at least one electrode in poor electrical contact with said core, wherein

10          said position or shape of resonance is temporarily changed by applying a current or  
11 voltage to said at least one electrode so as to induce a change in index of refraction in said  
12 tuning region.

1           27. (Canceled) The device of claim 26, wherein the tuning region is used to change the  
2 index of at least part of the cladding by a thermo-optic effect.

1           28. (Canceled) The device of claim 26, wherein the tuning region comprises a material  
2 whose index is changed through an electro-optic effect.

1           29. (Canceled) The device of claim 26, wherein the tuning region comprises a material  
2 whose index is changed through an acousto-optic effect.

1           30. (Canceled) The device of claim 26, wherein the tuning region comprises a material  
2 whose index is changed through a magneto-optic effect.

1           31. (Canceled) The device of claim 26, wherein the tuning region comprises a material  
2 whose index is changed through a photo-refractive effect.

1           32. (Canceled) The device of claim 26, wherein the tuning region comprises a material  
2 that is able to move mechanically.

1           33. (Canceled) The device of claim 26, wherein means for generating a change in the  
2 cladding of the micro-resonator are monolithically integrated with said input and output  
3 waveguides.

1           34. (Canceled) The device of claim 26, wherein means for generating a change in the  
2 cladding of the micro-resonator are hybridly integrated with said input and output waveguides.

1           35. (Canceled) The device of claim 26, wherein means for generating a change in the  
2 cladding of the micro-resonator are fabricated in the vicinity of said input and output  
3 waveguides.

1           36. (Canceled) The device of claim 26, wherein means for generating a change in the  
2 cladding of the micro-resonator are placed in contact with a substrate on which the micro-  
3 resonator is configured.

1           37. (Canceled) The device of claim 26, wherein said at least one electrode stands off at  
2   a distance larger than decay length of the optical intensity in the cladding.

1           38. (Canceled) The device of claim 26, wherein change of said cladding results in a  
2   change in optical path length in said micro-resonator.

1           39. (Canceled) The device of claim 26, wherein change of said cladding results in a  
2   change in coupling of said micro-resonator, thus a change in coupling efficiency and shape of  
3   the micro-resonator resonance.